

"On Reptilian Remains from the Trias of Elgin." By G. A. BOULENGER, F.R.S. Received April 29,—Read June 11, 1903.

(Abstract.)

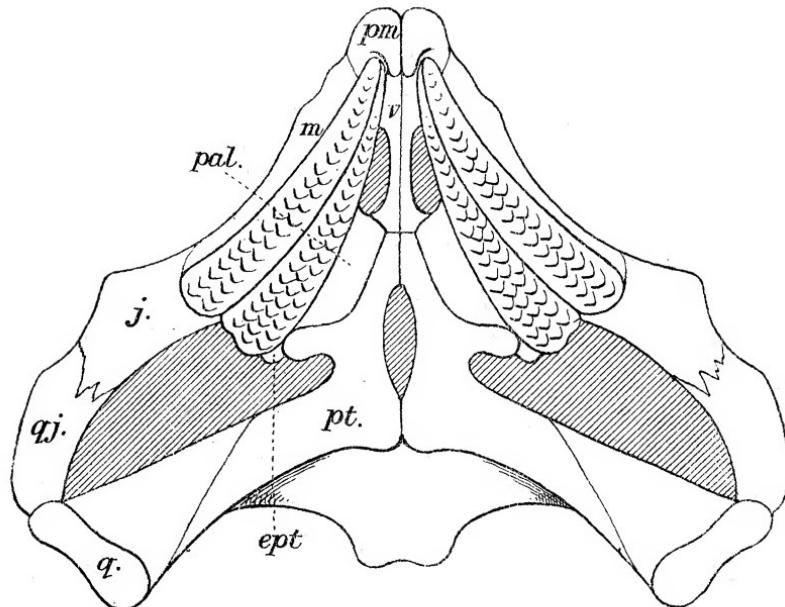
Descriptions are given of various reptilian remains obtained by Mr. William Taylor, J.P., of Lhanbryde, in the Triassic sandstone quarries at Lossiemouth, near Elgin. Thanks to the kind permission of Dr. A. S. Woodward, the fossils were further developed in the Geological Department of the British Museum by Mr. Hall.

The remains described belong to three different reptiles.

I. HYPERODAPEDON GORDONI, Huxley.

A skull is contained in a block of sandstone, split horizontally in the plane of the palate, which is for the first time clearly exposed.

FIG. 1.



ept. Ectopterygoid. j. Jugal. m. Maxilla. pal. Palatine. pm. Praemaxilla. pt. Pterygoid. q. Quadratoquadrate. q.j. Quadratojugal. v. Vomer.

The structure of the palate is seen to have been very different from what Huxley had surmised and shows a much nearer approximation to that of *Sphenodon*. The choanæ were elongate, oval, and situated

between the palatines and the vomers at some distance behind the praemaxillaries. Doubts have been thrown on Huxley's interpretation of the outer toothed bone of the skull, and it is important to settle the question of its identification. The new material has convinced the author that the teeth in the upper jaw are borne by both the maxillary and the palatine, as stated by Huxley. The fossil shows well the elongate rhomboidal vacuity between the pterygoid, ending at the point where they converge before diverging again towards the quadrate, to the massive anterior branch of which they are suturally united.

As may be seen from the annexed restoration, the palate of *Hyperodapedon* bears great resemblance, in its general structure, to that of the living *Sphenodon*, the principal differences, apart from the dentition, residing in the smaller bony roof of the mouth and the narrower vomers.

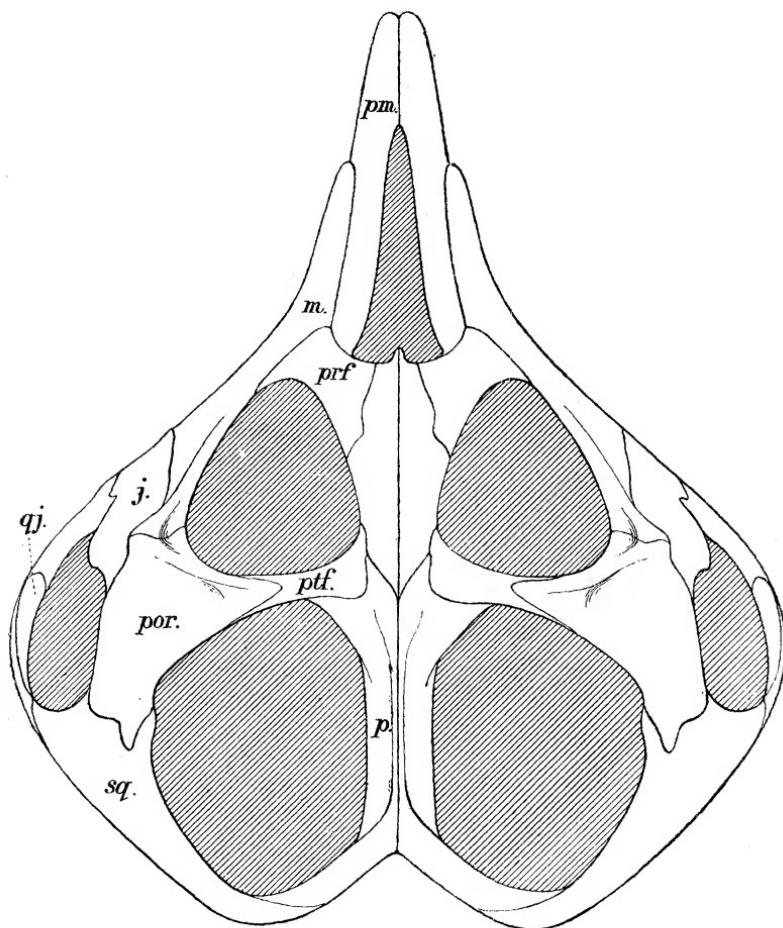
## II. STENOMETOPON TAYLORI, G. et sp. nn.

This name is proposed for a considerable portion of a skull of a Rhynchocephalian, closely related to *Hyperodapedon*, and belonging to the same family, Rhynchosauridæ. Its length is 177 mms. and its greatest width 160. One of the most striking features of *Hyperodapedon* as compared with its New Zealand ally, *Sphenodon*, resides in its much broader and more massive skull. The skull of the new Rhynchocephalian, although agreeing in its general structure with that of *Hyperodapedon*, is not broader and hardly more massive than that of *Sphenodon*, from which it differs, however, very much in shape. The rostrum has quite a different direction from either of these skulls, the tusk-like praemaxillaries, instead of being bent downwards into recurved processes, are directed forwards in a gradual slope from the frontal region to their extremities, which project beyond the turned-up extremities of the mandibular rami. This is practically the reverse of the condition in *Hyperodapedon*, where the strongly curved praemaxillary "tusks" are received between the outwardly directed rostral processes of the mandible. Nasal bones are absent.

As in *Hyperodapedon*, the nasal aperture is single, but, in accordance with the shape of the praemaxillaries, it is more elongate, its length being to its width as  $2\frac{1}{3}$ : 1; its posterior border extends to the level of the orbits, which are entirely directed upwards. The inter-orbital region is narrow, especially behind. The supra-temporal fossæ are very large, separated from the orbits by the narrow post-orbital arch and from each other by the sharp median crest of the parietals. The latero-temporal fossa is kidney-shaped and proportionately larger than in *Hyperodapedon*, but smaller than the supra-temporal fossa. The maxillary bone is deep and nearly vertical, with an oblique ridge

extending downward and backward to the jugal; the maxillary teeth, so far as they are preserved, appear very similar to those of *Hypero-*

FIG. 2.



*j.*. Jugal. *m.* Maxilla. *p.* Parietal. *pm.* Præmaxilla. *por.* Postorbital. *prf.* Præfrontal. *pm.* Præmaxilla. *ptf.* Postfrontal. *qj.* Quadratojugal. *sq.* Squamosal.

*dapedon*, and form a single series in front and two behind. The palate is imperfectly preserved, but what is left of it agrees in essential points with *Hyperodapedon*; the palatine teeth are disposed in three series behind.

**III. ORNITHOSUCHUS WOODWARDI, E. T. Newton.**

The specimen on which this species was founded by Mr. Newton in 1894, indicated a reptile about  $2\frac{2}{3}$  feet long. Specimens more than twice as large are now described, and afford much information on points which remained obscure. Clavicles were present, large and widely expanded at their inner extremity, where they overlapped the inter-clavicle. A plastron, or system of abdominal ribs, was also present, resembling very closely that of *Sphenodon*, each segment being formed of a median angulate piece to which a lateral limb is attached, the segments, however, being much more numerous and closer together than in the New Zealand reptile.

The presence of clavicles and of a plastron show that *Ornithosuchus* cannot be included among the Dinosaurs, as originally suggested, but must be placed in the Order Thecodontia, of Owen, which contains *Belodon* and *Aëtosaurus*. The Thecodontia should be kept distinct from the Crocodilia or Emydosauria; they agree with the latter, the Dinosauria and the Pelycosauria, to which they are very closely related, and differ from the Rhynchocephalia, in the truly thecodont dentition; they agree with the Rhynchocephalia and Pelycosauria, and differ from the Emydosauria and Dinosauria, in the presence of clavicles, whilst they show close resemblance to the Rhynchocephalia proper in the structure of the plastron. The presence of clavicles and the condition of the pelvis, in which the pubis enters the acetubulum, together with other characters showing greater generalisation, afford ample justification for the separation of the Thecodontia or Parasuchia, as a group of ordinal rank, from the Emydosauria. The author also expresses the opinion that precision in the definition of the higher group of reptiles would gain much by the Order Dinosauria being restricted to the carnivorous, truly thecodont forms, the others deserving to form an equivalent Order under the name of Orthopoda, Cope (Predentata, Marsh, Ornithischia, Seeley).

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